



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/530,220

10/24/2005

Yasushi Enokido

81864.0056

1260

26021 7590 06/08/2007

HOGAN & HARTSON L.L.P.  
1999 AVENUE OF THE STARS  
SUITE 1400  
LOS ANGELES, CA 90067

EXAMINER

RAO, G NAGESH

ART UNIT

PAPER NUMBER

1722

MAIL DATE

DELIVERY MODE

06/08/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/530,220

Applicant(s)

ENOKIDO ET AL.

Examiner

G. Nagesh Rao

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                           |

***Priority***

- 1) Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

- 2) Claims 1-17 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of Enokido,

U.S. Patent No. 7,136,561. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the claimed invention filed by applicant and Enokido 561 pertain to the same invention of a two-dimensional photonic crystal characterized by a plane of adjoining unit lattices dielectric constant region points. The difference pertaining between the two claimed product inventions relates to the ratio of the X and Y length portions of the crystal structure. Otherwise the claimed invention is fairly similar to that of Enokido 561 and the small differences pertaining to the crystal structures dimensions and etc... are viewed as resultant effective variable and obvious to obtain via modifying the same processing parameters put forth.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a

background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1722

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3) Claims 1-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jasper (US Patent No. 5,739,796).

Jasper 796 pertains to a multidimensional stacked photonic band gap crystal product whereby it describes in details two dimensional photonic crystal, wherein on a plane in which four adjoining unit lattices are arranged so as to have one angle in common with the unit lattice being a rectangle whose shorter side  $x_1$  has a length of  $x_1$  and whose longer side  $y_1$  has a length of  $y_1$ , first dielectric regions each being columnar and having a rectangular cross section whose shorter side  $x_2$  has a length of  $x_2$  and whose longer side  $y_2$  has a length of  $y_2$  are disposed on said shorter sides  $x_1$  and said longer sides  $y_1$  of each rectangular unit lattice, characterized in that said first dielectric region is arranged so that the midpoint of said shorter side  $x_1$  and the midpoint of said longer side  $y_1$  and the center of said rectangular cross section substantially coincide, said longer sides  $y_2$  of each said first dielectric region are substantially parallel to each other, furthermore jasper 796 teaches the crystal formed of second dielectric region surrounding said first dielectric region and having a dielectric constant different from that of

said first dielectric constant region, one being formed from a dielectric material and the other from a gas, (which is a process limitation imposed on the product structure and bears no weight to the structural components of the material-product (See MPEP 2113 for further details on Product by Process claims). Jasper 796 also teaches that the dielectric material utilized for the two dimensional photonic crystal is that of a Barium-Titanate Oxide (BSTO) ceramic structure (which are very well known photonic crystal materials). Finally as can be seen in Figure 3 of Jasper 796, is a base plate along with a plurality of said first dielectric regions erected from said base and formed from a dielectric material the same as that of said base, and a second dielectric region surrounding said first dielectric region (See Figure 3 and Col 6 Line 21 to Col 7 Line 7, as well Figs 1-10 and Cols 1-20 Lines 1-68).

However Jasper 796 fails to teach the appropriate dimensions put forth with respect to the ratio of the  $x_1$  and  $y_1$  values. It is the examiner's opinion that these are dimensions that are result effective variables and obvious to modify or come about with the result of the operator's desired output product.

It would be obvious to one having ordinary skill in the art at the time of the present invention to modify said parameters and derive a two dimensional crystal product with those  $x_1$  and  $y_1$  values based on desired

processing conditions in order to optimize the quality of the crystal product formed.

4) Claims 1-6 and 8-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shirane (US PG Pub 2002/0146196).

Shirane 196 pertains to a multidimensional stacked photonic band gap crystal product whereby it describes in details two dimensional photonic crystal, wherein on a plane in which four adjoining unit lattices are arranged so as to have one angle in common with the unit lattice being a rectangle whose shorter side  $x_1$  has a length of  $x_1$  and whose longer side  $y_1$  has a length of  $y_1$ , first dielectric regions each being columnar and having a rectangular cross section whose shorter side  $x_2$  has a length of  $x_2$  and whose longer side  $y_2$  has a length of  $y_2$  are disposed on said shorter sides  $x_1$  and said longer sides  $y_1$  of each rectangular unit lattice, characterized in that said first dielectric region is arranged so that the midpoint of said shorter side  $x_1$  and the midpoint of said longer side  $y_1$  and the center of said rectangular cross section substantially coincide, said longer sides  $y_2$  of each said first dielectric region are substantially parallel to each other, furthermore jasper 796 teaches the crystal formed of second dielectric region surrounding said



Art Unit: 1722

first dielectric region and having a dielectric constant different from that of said first dielectric constant region, one being formed from a dielectric material and the other from a gas, (which is a process limitation imposed on the product structure and bears no weight to the structural components of the material-product (See MPEP 2113 for further details on Product by Process claims). Finally as can be seen in Figure 3 of Jasper 796, is a base plate along with a plurality of said first dielectric regions erected from said base and formed from a dielectric material the same as that of said base, and a second dielectric region surrounding said first dielectric region (See Paragraphs 0012-0014 and Figure 1 as well Paragraphs 0001-0102 and Figures 1-12).

However Shirane 196 fails to teach the appropriate dimensions put forth with respect to the ratio of the  $x_1$  and  $y_1$  values. It is the examiner's opinion that these are dimensions that are result effective variables and obvious to modify or come about with the result of the operator's desired output product.

It would be obvious to one having ordinary skill in the art at the time of the present invention to modify said parameters and derive a two dimensional crystal product with those  $x_1$  and  $y_1$  values based on desired

processing conditions in order to optimize the quality of the crystal product formed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. Nagesh Rao whose telephone number is (571) 272-2946. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (571)272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

G NR

ROBERT KUNEMUND  
PRIMARY PATENT EXAMINER  
A.U. 11722